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THE ZOOLOGIST:

A

POPULAR MONTHLY MAGAZINE

OF

NATURAL HISTORY,

AND

JOURNAL FOR RECORDING FACTS AND ANECDOTES

RELATING TO

QUADRUPEDS, BIRDS, REPTILES, FISHES, MOLLUSKS,
INSECTS, WORMS, ZOOPHYTES, &c.

THEIR HABITS, FOOD, RETREATS, OCCASIONAL APPEARANCE,
MIGRATIONS, NESTS AND YOUNG.

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NOTICE TO SUBSCRIBERS.

PREPAYMENTS for 1865.—It is the usual time to remind Subscribers that the prepayment for 1864 has expired and that for 1865 has become due, fourteen numbers having been published, including Title and Index. The prepayment for the 'Entomologist' has also expired, and nine numbers have been issued for the four shillings.

Mr. Stainton's 'Annual' will be published as usual, and will be supplied from this Office as heretofore.

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The time for prepayment is prolonged until the 12th of January, after which the advantages accruing from prepayment cannot be allowed. Every subscriber will receive with this number a printed form, which he is earnestly requested to fill up, sign and return.

Every prepaid subscriber to the 'Entomologist' for 1865, who commenced his subscription on the 1st of January, 1865, has received the nine numbers previously published, free of all charge.

NATURAL-HISTORY SOCIETIES.

I shall be obliged to any reader of the 'Zoologist' who will send me the name and address of the Secretary, Curator or Manager, of any local Natural History or Scientific Society, where periodicals are allowed to lie on the table for general use.—*Edward Newman; 9, Devonshire Street, Bishopsgate.*

Moa's Egg. — We learn from the 'Nelson Examiner,' as quoted by the 'Times' of December 14, that a Moa's Egg has been found at Kaikoros, in the Middle Island: there is little to prove its age, but all the information will be published in the February 'Zoologist.'

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THE

ZOOLOGIST:

A

POPULAR MISCELLANY

OF

NATURAL HISTORY.

CONDUCTED BY

EDWARD NEWMAN, F.L.S., MEMB. IMP. L.-C. ACAD.

VOLUME THE TWENTY-THIRD.

WISDOM OF GOD IN CREATION.

LONDON:
JOHN VAN VOORST, PATERNOSTER ROW.

M.DCCC.LXV.

But let me to the vale once more descend,
And mingle with the woodland choir, and join
Their various song, and celebrate with them
The woods, the rocks, the streams, the bosky bourne,
The thorny dingle and the open glade;
For 'tis not in their song, nor in their plumes,
Nor in their wondrous ways, that all their charm
Consists; no, 'tis the grove, their dwelling-place,
That lends them half their charm, that still is link'd
By strong association's half-seen chain,
With their sweet song, wherever it is sung.
And while this lovely, this congenial theme,
I slightly touch, oh, may I ne'er forget,
Nature, thy laws!

James Grahame's '*Birds of Scotland*.'

BRITISH MUSEUM

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THE ZOOLOGIST

FOR 1865.

Notices of New Books.

'*The Birds of India; being a Natural History of all the Birds known to inhabit Continental India.*' By T. C. Jerdon. In two Volumes. Vol. ii.; Parts 1 and 2. Calcutta: 1863—64.

(Third and concluding notice).

Very pleasant must it be to dwell in a land where the roseringed parrakeet is one of the commonest and most familiar of birds, decorating every garden and perching on every house-top, roosting together by hundreds among the bamboos, and, on returning to their feeding-ground in the morning, skimming over the surface of the country, and rising above every little obstacle that presents itself. Very strange it must be to visit bamboo-groves so full of feathered inhabitants that their cries are deafening from day-dawn to sun-rise, and from twilight to dark, giving the listener the idea of a thousand of the noisiest steam-engines, clanking, puffing, blowing and screaming simultaneously. But for ingenuity and architectural skill commend us to the weaver-bird, or "baya," as our author prefers to call it: here is a scrap of its biography:—

"*The Common Weaver-bird* (Ploceus baya). — The baya breeds during the rains, according to the locality, from April to September; but I am not aware if they ever have more than one brood. Its long retort-shaped nest is familiar to all, and it is indeed a marvel of skill, as elegant in its form as substantial in its structure, and weather-proof against the down-pour of a Malabar or Burmese monsoon. It is very often suspended from the fronds of some lofty palm-tree, either the Palmyra, cocoa-nut or date, but by no means so universally so as Mr. Blyth would imply, for a babool (*Acacia arabica* or *Vachellia Farnesiana*) or other tree will often be selected in preference to a palm-

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tree growing close by, as I have seen, within a few miles of Calcutta, on the banks of the canal. Very often a tree overhanging a river or tank, or even a large well, is chosen, especially, as Tickell says, if it have spreading branches and scanty foliage. In India I have never seen the baya suspend its nest except on trees, but in some parts of Burmah, and more particularly in Rangoon, the bayas usually select the thatch of a bungalow to suspend their nests from, regardless of the inhabitants within. In the cantonment of Rangoon very many bungalows may be seen with twenty, thirty or more of these long nests hanging from the end of the thatched roof; and in one house in which I was an inmate, that of Dr. Pritchard, Garrison Surgeon there, a small colony commenced their labours towards the end of April, and in August, when I revisited that station, there were above one hundred nests attached all round the house! In India, in some localities, they appear to evince a partiality to build in the neighbourhood of villages or dwellings; in other places they nidificate in most retired spots in the jungle, or in a solitary tree in the midst of some large patch of rice cultivation. The nest is frequently made of grass of different kinds, plucked when green, sometimes of strips of plantain-leaf, and not unfrequently of strips from the leaves of the date-palm, or cocoa-nut; and I have observed that nests made of this last material are smaller and less bulky than those made with grass, as if the little architects were quite aware that with such strong fibre less amount of material was necessary. The nest varies much in the length both of the upper part or support, and the lower tube or entrance, and the support is generally solid, from the point whence it is hung, for two or three inches, but varies much both in length and strength. When the structure has advanced to the spot where the birds have determined the egg-compartment to be, a strong transverse loop is formed, not in the exact centre, but a little at one side. If then taken from the tree and reversed, the nest has the appearance of a basket with its handle, but less so in this than in the next two species, which have seldom any length of support above. Various authors have described this loop or bar as peculiar to the male nest, or sitting-nest, whereas it exists primarily in all, and is simply the point of separation between the real nest and the tubular entrance, and, being used as a perch both by the old birds and the young (when grown sufficiently), requires to be very strong. Up to this time both sexes have worked together indiscriminately; but when this loop is completed the female takes up her seat on it, leaving the cock bird to fetch more fibre and work from the outside of the nest, whilst she works on the inside, drawing in the fibres pushed through by the male, reinserting them in their proper place, and smoothing all carefully. Considerable time is spent in completing this part of the nest, the egg-chamber being formed on one side of the loop and the tubular entrance on the other; after which there appears to be an interval of rest. It is at this stage of the work, from the formation of the loop to the time that the egg-compartment is ready, that the lumps of clay are stuck on, about which there are so many and conflicting theories. The original notion, derived, I believe, entirely from the natives, was that the clay was used to stick fire-flies on, to light up the apartment at night. Layard suggests that the bird uses it to sharpen its bill on; Burgess, that it serves to strengthen the nest. I of course quite disbelieve the fire-fly story, and doubt the other two suggestions. From an observation of several nests, the times at which the clay was placed in the nests, and the position occupied, I am inclined to think that it is used to balance the nest correctly, and to prevent its being blown about by the wind. In one nest lately examined, there was about three ounces of clay in six different patches. It is generally believed that the unfinished nests are built by the male for its own special behoof, and that the pieces of clay are more commonly found in it than in the complete nests. I did not find this the case at Rangoon, where my opportunities of observing the bird were good, and believe rather that the unfinished nests are either rejected from some imperfect construction, weak support or other reason, if built early in the breeding season; or, if late, that they are simply the efforts of that constructive faculty which appears, at this season, to have such a powerful effect on this little bird, and which causes some of them to go on building the long tubular entrance long after the hen is seated on her eggs."—P. 344.

But I am forgetting myself, and reverting to a volume that I had laid aside, for in reality there are three volumes instead of two; although vols. ii. and iii. are paged consecutively, and thus the idea of a continuous volume kept up, there are altogether three as distinct volumes as ever need be handled, and all three are of goodly dimensions: let us dive into the third, and begin with a short quotation about the bronze-backed pigeon.

"*The Bronze-backed Imperial Pigeon* (Carpophaga insignis).—During the hot weather, from the middle of April to the first week in June, when the rains almost invariably commence on the Malabar Coast, large numbers of this pigeon descend from the neighbouring mountainous region of Coorg and Wynaad, to a large salt swamp in the neighbourhood of Cannanore, and there not only eat the buds of

Aricennia, and other plants and shrubs that affect salt and brackish swamps, but also (as I was credibly informed by several native shikarees, to whom I was first indebted for the information of these pigeons resorting there) pick up the salt earth on the edge of the swamp, and of the various creeks and back waters that intersect the ground. I visited this place towards the end of May, 1849, when many of the pigeons had gone, as I was informed, but even then saw considerable numbers flying about and feeding on the buds of the Aricennia, and then retiring a short distance to some lofty trees to rest. Although the day was unfavourable and rainy, I killed above a dozen of these fine pigeons, and several natives, who were there with guns for the purpose of shooting them, assured me that they often killed from one to two dozens daily, simply remaining in one spot. Had I not secured the birds myself in this locality, I confess I would barely have accredited the account I received of these mountain residents descending to the plains during the hottest season of the year. I presume that these pigeons breed after their return to the hills, but I have no information on this head."—P. 458.

Episodically Mr. Jerdon introduces a notice of the lyre-bird, apparently with no other object than to give his idea of its affinities. These ideas are not only interesting, but, as it appears to me, very rational. On this subject I am quite content to await the evidence which its economy and habits will undoubtedly supply, whenever these shall be satisfactorily ascertained. Mr. Jerdon is certainly right in craving a reconsideration of a question so deeply interesting to every naturalist, whether ornithologist or not. I need not inform ornithologists that the lyre-bird is Australian, and not Indian.

"*Lyre-bird of Australia* (Menura superba).—The celebrated lyre-bird of Australia has so much the aspect of a Megapodine bird, that I cannot help considering it as not far removed from this family. Its extraordinary and unique tail consists of sixteen feathers, a number unknown amongst the Insessores, not one of which has more than twelve; its great size, compared with that of the minute birds among which it is usually placed by systematists, *viz.*, the wrens and the warblers; its strong gallinaceous legs and feet; its habit of running with facility, which it always employs in preference to flight;—all these combine to remove this bird from the Insessores; and its geographic relations with the Megapodii must also be taken into account. It is said, however, to build a neat nest on a ledge of rock, to have the power of modulating its voice, and that the young are helpless at birth. If these habits are fully confirmed, I would still prefer placing it as a separate group next the Megapodidæ, with which it undoubtedly possesses considerable affinities; and in the Darwinian theory of transmutation of species it must have sprung directly from an ambitious Megapode which had desired to raise itself in the scale of birds."—P. 494.

In gallinaceous birds India is richer than any other country in the world, and, as a matter of course, a very considerable portion of the third volume is occupied in describing them. From the lordly peacock to the diminutive quail, all are interesting, all are beautiful, and all occur in a profusion of which, in this country, we have no example. Colonel Williamson, in his notes on the Jungleterry district, says that from twelve to fifteen hundred peacocks were often in sight at once; "whole woods were covered with their beautiful plumage." In vain does the artist exclaim, "Never approximate blue and green." Ruskin tells us, "There is nothing either in nature or art more beautiful than a peacock's neck." Mr. Gosse warms into eloquence at the thought of this beautiful object. "Who does not know his empurpled neck, so elegantly bridled; his aigrette of four-and-twenty battledoor feathers; his pencilled body-clothing; and, above all, his grand erectile train, with its rows of eyelets, the kidney-shaped nucleus of deepest purple, the surrounding band of green, widening in front and filling the notch of the pupil, the broad circle of brown, the narrow black ring edged with chesnut, and then the decomposed barbs of the feather, gilded green, all presenting the effulgence of burnished metal, or rather the glitter and glow of precious gems flashing in the varying light." Impey's pheasant is almost as beautiful; its splendid metallic greens and purples can scarcely be surpassed: let us hear Mr. Jerdon's account of this magnificent bird.

"*The Monaul Pheasant* (Lophophorus Impeyanus).—The monaul is found on almost every hill of any elevation, from the first great ridge above the plains to the limits of the wooded district, and in the interior it is the most numerous of the game-birds. When the hills near Mussooree were first visited by Europeans, it was found to be common there, and a few may still be seen on the same ridge eastwards from Landour. In summer, when the rank vegetation which springs up in the forest renders it impossible to see many yards around, few are to be met with, except near the summits of the great ridges jutting from the snow, where, in the morning and evening, when they come out to feed, they may be seen in the open glades of the forest and on the green slopes above. At that time no one would imagine they were half so numerous as they really are; but as the cold season approaches, and the rank grass and herbage decay, they begin to collect together, the wood seems full of them, and in some places hundreds may be put up in a day's work. In summer the greater number of the males and some of the females ascend to near the limits of the forests where the hills attain a great elevation, and may often be seen on the grassy slopes a considerable distance above. In autumn they resort to those parts of the forests where the ground is thickly covered with decayed leaves, under which they search for grubs; and descend lower and lower as winter sets in, and the ground becomes frozen or covered with snow. If the season be severe, and the ground covered to a great depth, they collect in the woods which face to the south or east, where it soon melts in the more exposed parts, or descend much lower down the hill, where it is not so deep, and thaws sufficiently to allow them to lay bare the earth under the bushes and sheltered places. Many, particularly females and young birds, resort to the neighbourhood of the villages situated up in the woods, and may often be seen in numbers in the fields. Still in the severest weather, when fall after fall has covered the ground to a great depth in the higher forests, many remain there the whole winter; these are almost all males, and probably old birds. In spring all in the lower parts gradually ascend as the snow disappears. In the autumnal and winter months numbers are generally collected together in the same quarter of the forest, though often so widely scattered that each bird appears to be alone. Sometimes you may walk for a mile through a wood without seeing one, and suddenly come to some part where, within the compass of a few hundred yards, upwards of a score will get up in succession; at another time, or in another forest, they will be found dispersed over every part, one getting up here, another there, two or three further on, and so on for miles. The females keep more together than the males; they also descend lower down the hills, and earlier and more generally leave the sheltered woods for exposed parts or the vicinity of villages on the approach of winter. Both sexes are often found separately in considerable numbers. On the lower part, or exposed side of the hill, scores of females and young birds may be met with, without a single old male; while higher up, or on the sheltered side, none but males may be found. In summer they are more separated, but do not keep in individual pairs, several being often found together. It may be questioned whether they do pair or not in places where they are at all numerous; if they do, it would appear that the union is dissolved as soon as the female begins to sit, for the male seems to pay no attention to her whatever whilst sitting, or the young brood when hatched, and is seldom found with them. The call of the monaul is a loud plaintive whistle, which is often heard in the forest at daybreak or towards evening, and occasionally at all hours of the day. In severe weather numbers may be heard calling in different quarters of the wood before they retire to roost. The call has a rather melancholy sound, or it may be that, as the shades of a dreary winter's evening begin to close on the snow-covered hills around, the cold and cheerless aspect of nature, with which it seems quite in unison, makes it appear so. From April to the commencement of the cold season, the monaul is rather wild and shy, but this soon gives way to the all-taming influence of winter's frosts and snows; and from October it gradually becomes less so, till it may be said to be quite the reverse; but as it is often found in places nearly free from underwood, and never attempts to escape observation by concealing itself in the grass or bushes, it is perhaps sooner alarmed, and at a greater distance than other pheasants, and may therefore appear at all times a little wild and timid. In spring it often rises a long way in front, and it is difficult to get near it when it again alights, if it does not at once fly too far to follow; but in winter it may often be approached within gunshot on the ground, and when flushed it generally alights on a tree at no great distance, and you may then walk quite close to it before it again takes wing. In the forest, when alarmed, it generally rises at once without calling or running far on the ground; but on the open glades or grassy slopes, or any place to which it comes only to feed, it will, if not hard pressed, run or walk slowly away in preference to getting up; and a distant bird, when alarmed by the rising of others, will occasionally begin and continue calling for some time while on the ground. It gets up with a loud fluttering and a rapid succession of shrill screeching whistles, often continued till it alights, when it occasionally commences its ordinary loud and plaintive call, and continues it for some time. In winter, when one or two birds have been flushed, all within hearing soon get alarmed; if they are collected together, they get up in rapid succession; if distantly scattered, bird after bird slowly gets up, the shrill call of each, as it rises, alarming others still further off, till all in the immediate neighbourhood have risen. In the chesnut forests, where they are often collected in numerous bodies, where there is little underwood, and the trees, thinly dispersed and entirely stripped of their leaves, allow of an extensive view through the wood, I have often stood till twenty or thirty have got up and alighted on the surrounding trees, then walked up to the different trees, and fired at those I wished to procure, without alarming them, only those close being disturbed at each report. In spring they are more independent of each other's movements, and though much wilder are more apt to wait till individually disturbed. When they alight in the trees and are again flushed, the second flight is always a longer one. When repeatedly disturbed by the sportsmen or shikarees, they often take a long flight in the first instance. The seasons also have great influence over them in this respect, as well as in their degree of tameness or wildness. In spring, when the snow has melted in every part of the forest, and they have little difficulty in procuring an abundance of food, they appear careless about being driven from any particular spot, and often fly a long way; but in winter, when a sufficiency of food is not easily obtained, they seem more intent on satisfying their hunger, and do not so much heed the appearance of man. The females appear at all times much tamer than the males. The latter have one peculiarity not common in birds of this order: if intent on making a long flight, an old male, after flying a short way, will often cease flapping his wings, and soar along with a trembling vibratory motion, at a considerable height in the air, when, particularly if the sun be shining on his brilliant plumage, he appears to great advantage, and certainly looks one of the most magnificent of the pheasant tribe. In autumn the monaul feeds chiefly on a grub or maggot which it finds under the decayed leaves; at other times on roots, leaves and young shoots of various shrubs and grasses, acorns, and other seeds and berries. In winter it often feeds in the wheat and barley fields, but does not touch the grain; roots and maggots seem to be its sole inducement for digging amongst it. At all times and in all seasons it is very assiduous in the operation of digging, and continues at it for hours together. In the higher forests large open plots occur quite free from trees or underwood, and early in the morning or towards evening these may often be seen dotted over with monauls, all busily engaged at their favourite occupation. The monaul roosts in the larger forest trees, but in summer, when near or above their limits, will often roost on the ground in some steep rocky spot. The female makes her nest under a small overhanging bush or tuft of grass, and lays five eggs of a dull white, speckled with reddish brown; the chicks are hatched about the end of May. The flesh is considered by some as nearly equal to turkey, and by others as scarcely eatable. In autumn and winter many, particularly females and young birds, are excellent, and scarcely to be surpassed in flavour or delicacy by any of the tribe; while from the end of winter most are found to be the reverse. They are easily kept in confinement, and I would imagine might, without much difficulty, be naturalized in Europe."—P. 511.

I take the remaining extracts in succession, without interspersing them with any comments of my own.

"*The Himalayan Snow-cock* (Tetraogallus Himalayensis). — This fine bird is found throughout all the western portion, at all events of the Himalayan range, as far as Nepal, but it is not certain if it extend eastward into Sikim and Bootan. It is also found across the higher ranges in Chinese Tartary and Thibet. It is probably the species observed in Cashmere by Vigne, who states that it inhabits the Snowy Punjab on both sides of the valley, but more common on the Thibet side. 'These fine birds,' says Hutton, 'are common in the Hazara mountains, and are called Kauk-i-durra, or the "Partridge of the Ghâts," by the Affghans, and they are sometimes sold in the markets of Cabool and Candahar. They rise in coveys of from ten to twenty, and usually have a sentry perched on some neighbouring rock, to give warning of danger by his low and musical whistle. They are difficult birds to shoot; I found them in patches of the so-called Tartaric furze. Captain Boys states that it is strong on the wing, and that its flights are very protracted. Its note, he says, resembles that of a dipper (*Cinclus*), finishing with the cluck of a chukor. During flight it emits a shrill whistle, somewhat similar to that of the monaul.' It is confined exclusively to the snowy ranges, or the large spurs jutting from them, which are elevated above the limits of the forest, but is driven by the snows of winter to perform one, and in some places two, annual migrations to the middle regions; in summer they are only seen near the limits of vegetation. In Koonour (Kunawur) they are common at all seasons, from Chenee upwards; but on the Gangetic hills, from June till August, however much a person wanders about on the highest accessible places, but few are met with, and I have no doubt whatever but that nearly all which at other seasons frequent this part retire across the snow into Chinese Tartary to breed. About the beginning of September they are first seen near the tops of the higher grassy ridges jutting from the snow, and the green slopes above and about the limits of the forest. After the first general and severe fall of snow, they come down in numbers on to some of the bare exposed hills in the forest regions, and remain there till the end of March. This partial migration is probably made in the night after the fall of snow, as I have invariably found them in their winter quarters early the next morning. It requires a deep fall to drive them down, and some mild winters, except a few odd birds, they do not come at all. The birds on each respective hill seem to have a particular spot for their winter resort, which they return to every year the migration is made. The snow-pheasant is gregarious, congregating in packs sometimes to the number of twenty or thirty, but in general not more than from five to ten, several packs inhabiting the same hill. In summer the few which remain on one side are found in single pairs generally, but across the snow, where the great body migrate, I almost always, even then, found several together. They seldom leave the hill on which they are located, but fly backwards and forwards when disturbed. The ring-tailed eagle is an inveterate annoyer of these birds; inhabiting such exposed situations, where there is nothing to conceal so large a bird from his sight, as he sails along the hill-side above them, they at once arrest his attention, and are driven backwards and forwards by this unrelenting tormentor all day long. On the appearance of one of these birds, which fortunately for them are not very numerous, they seldom wait till he makes a stoop, but, on his making a wheel near the spot where they are, immediately fly off to another quarter of the hill; the eagle never flies after or attacks them on the wing; so that, although he allows them little quietude when near their resort, he only occasionally succeeds in securing one. The jer-moonal never enters forest or jungle, and avoids spots where the grass is long, or where there is underwood of any kind. It is needless to add that it never perches. During the day, if the weather be fine and warm, they sit on the rocks or rugged parts of the hill, without moving much about, except in the morning and evening. When cold and cloudy, and in rainy weather, they are very brisk, and are moving about and feeding all day long. When feeding they walk slowly up-hill, picking up the tender blades of grass and young shoots of plants, occasionally stopping to snatch up a certain bulbous root, of which they seem very fond. If they reach the summit of the hill, after remaining stationary for some time, they fly off to another quarter, alighting some distance down, and again picking their way upwards. When walking they erect their tails, have a rather ungainly gait, and at a little distance have something the appearance of a large gray goose. They are partial to feeding on spots where the sheep have been kept at nights, when grazing in the summer pastures. These places have been called 'tatters' by the shepherds, and the grass on them keeps green and fresh long after the rest of the hill is quite dry and brown. They roost on the rocks and shelves of precipices, and return to one spot many successive nights. Their call is a low soft whistling, occasionally heard at intervals throughout the day, but more generally at daybreak. It is most common in cloudy weather. The first note is considerably prolonged, and followed by a succession of low rapid whistles, and it is by far the most agreeable song of all our game birds. This note is only heard when the bird is at rest; when alarmed and walking away, it sometimes utters at short intervals a single low whistle, and when it gets on the wing the whistles are shrill and very rapid. However far it flies the whistling is continued until it alights, and for a few seconds afterwards, but then slightly changed in tone to a few notes, which seem in a strange manner to express satisfaction at being again on the ground. However odd the comparison, I can compare the whistling of these birds, when flying and alighting, to nothing but the difference in sound produced by the wings of a flock of pigeons when flying, and when alighting on some spot where they have to flutter a few seconds before they can gain footing. The jer-moonal is not remarkably wild or shy. When approached from below, on a person getting within eighty or a hundred yards, they move slowly up-hill or slanting across, often turning to look back, and do not go very far unless followed. If approached from above, they fly off at once, without walking many yards from the spot. They seldom in any situation walk far down-hill, and never run except for a few yards when about to take wing. The whole flock get up together; the flight is rapid, downwards at first, and then curving so as to alight nearly on the same level. Where the hill is open and of great extent, it is often, for upwards of a mile, at a considerable height in the air; when more circumscribed, as is often the case on the hills they frequent in winter, it is of shorter duration, perhaps merely across or into the next ridge. They feed on the leaves of plants and grass, and occasionally on moss, roots and flowers; grass forms by far the greater portion. They are very partial to the young blade of wheat and barley, when it is first springing up and while it remains short; and should there be an isolated patch on the hill where they are, visit it regularly night and morning. They never, however, come into what may be called the regular cultivation. They are generally exorbitantly fat, but the flesh is not particularly good, and it has often an unpleasant flavour when the bird is killed at a high elevation, probably owing to some of the plants it there feeds upon. Though I have spent many summers on the snowy ranges I never found the nest or eggs, but in Thibet I often met with broods of young ones newly hatched. There were, however, several old birds, and probably more than one brood of chicks, so I could form no correct idea of the number in one brood. They are hardy birds and easily kept in confinement, but, though they will eat grain, I doubt if they will live long without an occasional supply of their natural green food of grass and plants. They may be kept with the least trouble in large cages, the bottoms of which, instead of being solid, are made of bars of wood or iron wire, so that, the cages being put out on the grass, the birds may feed though the interstices. The eggs which have been found by travellers are about the size of those of the turkey, but, like those of the grouse, are of a more lengthened form; their ground colour clear light olive, sparingly dotted over with small light chesnut spots."—P. 550.

"*The Chukor Partridge* (Caccabis chukor).—In our part of the hills (*i. e.*, in the North-western Himalayas), the chuckore is most numerous in the higher inhabited districts, but is found scattered over all the lower and middle ranges. In summer they spread themselves over the grassy hills to breed, and about the middle of September begin to assemble in and around the cultivated fields near the villages, gleaning at first in the grain fields which have been reaped, and afterwards, during winter, in those which have been sown with wheat and barley for the ensuing season, preferring the wheat. A few straggling parties remain on the hill-sides, where they breed, as also in summer many remain to perform the business of incubation in the fields. In autumn and winter they keep in loose scattered flocks, very numerous, sometimes to the number of forty or fifty, and even a hundred. In summer, though not entirely separated, they are seldom in large flocks, and a single pair is often met with. They are partial to dry stony spots, never go into forest, and in the lower hills seem to prefer the grassy hill-sides to the cultivated fields. This may probably be owing to their comparatively fewer numbers, as I have observed that many others of the feathered race are much shyer and more suspicious of man when rare, than those of the same species in places more numerous. Their call is a kind of chuckling, often continued for some time, and by a great many birds at once. It is uttered indiscriminately at various intervals of the day, but most generally towards evening. The chuckore feeds on grain, roots, seeds and berries; when caught young it becomes quite tame, and will associate readily with domestic poultry. From the beginning of October chuckore-shooting, from the frequency and variety of the shots, and the small amount of fatigue attending it, is, to one partial to such sport, perhaps the most pleasant of anything of the kind in the hills. About some of the higher villages ten or a dozen brace may be bagged in a few hours. Dogs may be used or not at the discretion of the sportsman; they are not at all necessary, and if at all wild are more in the way than otherwise. 'The male,' says Major Brown, 'is very bold, and is tamed for the purpose of fighting. In a domesticated state he makes no hesitation in offering battle to every animal, and pecks very fiercely, always searching for a tender part; the nose of a dog, or the naked feet of the native servants, immediately attract his attention, and he soon makes the object of his attack fain to run.' 'When reclaimed,' says another writer, 'this bird is peculiarly bold, fearless and entertaining. It trots about the house, and is familiar as a little dog. It is amusing to see its antipathy to quick motions in others. It will follow a servant who hurries into a room, pecking at his heels, scouring away when he attempts to turn upon it. It is still more persevering against the poor wight who moves backwards and forwards as he pulls the punkah. Half asleep at his task, he is aroused by a fierce attack on his legs. He attempts to continue his work, and at the same time to drive away the intruder, but it is of no use; and he is at last obliged to call for assistance to rid him of his persecutor.' The hen-chukor lays from eight to fifteen eggs, of a creamy white according to one writer, pure white according to Adams; and the male bird is said to remain near the nest during incubation, and may be heard calling all day, its call much resembling that of the domestic hen, being a 'cuc-cuc' often repeated, and the Cashmeeres call it 'Kau-kau' from its cry. The Affghans call it the 'fire-eater.' It is considered to be excellent eating. In Ladak it is said to be numerous in the cultivated part of the country, and is there called 'Nekpa.'"—P. 565.

"*The Indian Bustard* (Eupodotis Edwardsii).—The bustard frequents bare open plains, grassy plains interspersed with low bushes, and occasionally high grass rumnahs. In the rainy season large numbers may be seen together, stalking over the undulating plains of the Deccan or Central India. I have seen flocks of twenty-five and more, and a writer in the 'Sporting Review' mentions having seen above thirty on one small hill. This writer states his belief that they are never seen in any district that is not characterized by hills as well as plains; but this, from my own experience, I would merely interpret that they do not frequent alluvial plains, but prefer the undulating country; for I have seen them on extensive plains, where there were merely a few ridges or eminences, and nothing deserving the name of a hill close at hand. Towards the close of the rains, and in the cold weather before the long grass is cut down, the bustard will often be found, at all events in the heat of the day, concealed in the grass, but not for the purpose of eating the seeds of the roussa-grass, as the writer above alluded to imagines; rather for the large grasshoppers that abound so there, and which fly against you at every few steps you take. During the cold weather the bustard frequently feeds and rests during the day likewise, in wheat fields. When the grass and corn are all cut, and the bare plains no longer afford food to the bustard, it will be found along the banks of rivers where there is long grass mixed with bushes, or the edges of large banks, or low jungle where there is moderately high grass, or it wanders to some district where there is more grass; for though they do not migrate, yet bustards change their ground much, according to the season and the supply of grasshoppers and other insects. The hen birds, remarks the writer quoted above, generally congregate together during the rains, are very timid, and frequently, when a sportsman is pursuing a single one, she will attempt to seek safety, fatally for herself, in some large bush, particularly if the gunner turn aside his head, and affect not to see her at the moment of hiding. The cock birds, at this season, feed a mile or so apart from the hens, and, stretching their magnificent white necks, stride along most pompously. Besides grasshoppers, which may be said to be their favourite food, the bustard will eat any other large insect, more especially Mylabris, or blistering beetle, so abundant during the rains; the large Buprestis, Scarabei, caterpillars, &c., also lizards, centipedes, small snakes, &c. Mr. Elliot found a quail's egg entire in the stomach of one, and they will often swallow pebbles or any glittering object that attracts them. I took several portions of a brass ornament, the size of a No. 16 bullet, out of the stomach of one bustard. In default of insect food it will eat fruit of various kinds, especially the fruit of the byr (*Zizyphus jujuba*) and caronda (*Carissa carandas*), grain and other seeds and vegetable-shoots. The bustard is polygamous, and at the breeding season, which varies greatly according to the district, from October to March, the male struts about on some eminence, puffing out the feathers of his neck and throat, expanding his tail and ruffling his wings, uttering now and then a low, deep, moaning call, heard a great way off. The female lays one or two eggs of a dark olive-green, blotched with dusky. I have killed the young, half-grown, in March, near Saugor. The bustard has another call, heard not unfrequently, compared by some to a bark or a bellow; chiefly heard, however, when the bird is alarmed. This is compared by the natives to the word 'hook,' hence the name of 'hookna,' by which it is known to the villagers about Gwalior. When raised it generally takes a long flight, sometimes three or four miles, with a steady continued flapping of its wings, at no great height above the ground, and I never found that it had any difficulty in rising, not even requiring to run one step, as I have many times had occasion to observe when flushing them in long grass or wheat fields. On the bare open plains it will sometimes run a step or two before mounting into the air. A writer in the 'Bengal Sporting Magazine' asserts that he has known the bustard ridden down, and that after two or three flights it is so exhausted as to allow of its capture. I imagine that a healthy bird would tire out the best horse and rider before giving in. At times a single cock-bustard can be very easily stalked so as to get within distance of a fair shot, fifty or sixty yards, or even nearer, by rapidly moving obliquely towards them; when several are together they are more wary, but even then can often be approached within one hundred yards. If there is any bushy or uneven ground to favour the gunner the task is comparatively easy. Occasionally they may be flushed in long grass or dhal fields, or even wheat fields, and an easy shot obtained; and I once brought down two birds, right and left, in a wheat field near Saugor. Many sportsmen kill it with the rifle, and one sportsman on the Bombay side is known to have killed above one thousand bustards with his rifle, chiefly, I believe, in the Deccan and Southern Mahratta country. A young bustard or full-grown hen bird are very excellent eating; the flesh is dark and very highly flavoured, but in an adult cock it is rather coarse."—P. 609.

Were I to follow my own inclination I could prolong this notice almost indefinitely, there is so much that tempts one onwards, so much to read and so much to quote. Not only is there abundant matter for notice in life-history, the highest branch of Ornithology, but even in systematic arrangement; notwithstanding the self-imposed fetters of method, there are good and genuine observations, well worth citing and well worth considering; in fact it is impossible to open these volumes without finding instructive matter, and it is impossible to close them without the conclusion that the author has well and nobly completed his task. The number of species described is above one thousand, or about double that of the avi-fauna of Europe; and the time occupied by the author in describing the whole was only two years and one month, a fact that must ever hereafter stand as a proof that energy, industry and perseverance are not incompatible with a residence under the sultry suns of India, and even though accompanied, during a portion of the time, by severe indisposition.

No very precise idea is conveyed to my own mind, and I think most of my readers will acknowledge to a similar feeling, by the title 'Birds of India.' India, as defined either by political or physical boundaries, presents as great contrast of climate as either of our continents; we ascend from the Hoogley to the Himalayas through every degree of temperature and every kind of vegetation; and as a consequence, an inevitable result, the greatest diversity exists among the feathered tribes. In the Index to this work, as in the country itself, the most strikingly English of hawks, sparrows, crows, martins, cuckoos, pipits and herons, mingle with and jostle against the most tropical of vultures, parrots, peacocks, monauls, adjutants, snake-birds, and frigate-birds. When we use such titles as 'Birds of Australia,' 'Birds of New Zealand,' 'Birds of Canada,' or 'Birds of Britain,' we convey an idea, although perhaps not a very exact one, of the objects of which we are speaking or writing; there is a peculiarity of characters common to the entire contents of each of these avi-faunas; but that the case is entirely different with India the preceding observations will sufficiently prove. On this account, on account of this extraordinary diversity, India is the country in which a systematic arrangement of birds can be studied with the greatest probability of attaining true and satisfactory results. There are, however, some points which might, I think, be brought prominently forward as worthy of especial notice; such, for instance, as the great abundance of gallinaceous birds, both as regards species and individuals; and such as the absence of the Struthionidæ, which form so prominent a feature in Australia, Africa and South America. It was scarcely to be expected that an author, giving his mind so thoroughly to life-history and specific differences, should also enter on the wider field of generalities and statistics of bird-distribution. In this, however, no one is so well qualified as Mr. Jerdon: it is not to be imagined that the mere compiler or critic, even though furnished with these abundant materials, can hereafter arrive at conclusions with such certainty and accuracy as one who has collected the information on the spot,—one, indeed, to whom alone we still look for a well-digested summary of his own invaluable labours.

In conclusion, I can only express a sincere desire that my ornithological readers will not fail to possess themselves of a work so replete with interest and instruction: I do not hesitate to assure them that the purchase-money will be well expended, and will produce an ample return in increasing their knowledge of Ornithology.

EDWARD NEWMAN.

Ornithological Notes from Shetland. By HENRY L. SAXBY, M.D.

(Continued from p. 9310.)

Guillemot, Puffin and Kittiwake. — The high cliffs at Burrafirth, which were covered with birds a few weeks ago, are now entirely deserted. The guillemots left their breeding-stations about the middle of August, and, after remaining in the neighbouring waters for a few days, were seen no more. It is supposed that this species does not entirely leave us at any time of the year, but that at the close of the breeding season it withdraws to the open sea, remaining there until the following spring. How far this belief may be correct it is difficult to say; but occasionally, after stormy weather, I have shot specimens near the shore, and picked up others dead at the water's edge. According to Dr. Baikie and Mr. Heddle, it remains in Orkney the whole year. During the second week of August puffins and kittiwakes collected separately into enormous flocks, and by the commencement of September not one was remaining in the cliffs. It is very rarely indeed that the puffin is seen here in winter. One shot in November had the sides of the head dusky gray, and round the eye, but chiefly above it, were numerous small black marks.

Skua (Lestris catarractes) *and Richardson's Skua.* — The time of the skua's departure seems to be early in August, probably about the second week, but, as the birds leave the breeding-ground and become scattered some weeks previously, this point in their history is difficult to determine. The same remarks also apply to Richardson's skua, although stray individuals may occasionally be seen as late as September.

Arctic Tern. — Arctic terns left, as nearly as I can ascertain, about the middle of August. Last year a small party of them suddenly appeared at Burrafirth, on the 21st of September, and as suddenly took their departure the same day. None had been seen for several weeks previously.

Wheatear. — Wheatears usually begin to leave during the second week in September, and then slowly disappear. Those which remain until the end of the month are always young birds. This year there was a perceptible diminution in their number about a week earlier than usual. Although I have seen wheatears arrive in flocks upon the south coast of England, I have never yet even heard of the vast numbers which are scattered over these islands collecting into flocks before taking their departure. The whole number of those which return to us in summer arrive almost simultaneously.

Lesser Blackbacked Gull.— By the end of August the lesser blackbacked gulls had all disappeared, except of course the old female which has now remained for upwards of twenty-two years in the garden at Halligarth, without displaying the smallest degree of restlessness, or desire to accompany her fellows at the time of the usual migration. This bird was taken from the rocks when very young, and has since lived in the garden, summer and winter, without attempting to escape. A slight injury to one wing prevents her from flying, and the door may be left open for hours at a time, or snow may be lying upon a level with the walls, and yet she will never pass their limits. Although she has been so long in captivity, kindness has hitherto failed to make the smallest impression upon her utter aversion to the human species; any person who approaches her is sure to be attacked, and even those who carry her food are subjected to the same ungracious treatment. Almost anything which is eatable seems to suit her appetite; even oatmeal porridge is not refused, and fish, raw meat, birds and mice never seem to come amiss. Somewhat late in the breeding season she scrapes out a rude sort of nest, and sits most perseveringly in it for several weeks; and although eggs have several times been introduced into the nest while she has been away feeding, upon her return she has invariably broken them with her bill, and swallowed most of their contents. Towards the end of September the head becomes spotted with light brownish gray, remaining in that state until the following spring. One winter, during a long-continued frost, she was attacked by two hooded crows, but compelled them both to retreat, although not until after a terrible battle, in which she nearly lost her life. Lesser blackbacked gulls do not acquire their adult plumage until the end of the third year: a bird a year old has the back mottled with bluish black and various shades of light brown.

Swallow. — A summer rarely passes without our seeing a few swallows. On the 24th of September four of these birds visited the shore, and remained there for several days. I have only heard of one instance of its breeding in Shetland. Strangers to these islands are often misled by the statement of the inhabitants that it breeds abundantly in many parts; but it is the storm petrel which is here known by the name of "swallow," as well as by the more common name of "spencie."

Merlin.—Young merlins visit the garden very frequently, and appear to be fond of concealing themselves in thick bushes, and dashing out with a great noise when any person approaches: in consequence of this habit I have been able to shoot several. The old birds, on the contrary, keep more to the hills and open grounds, seldom venturing near the garden, except when bad weather has caused a scarcity of food elsewhere.

Rock Dove.—Rock doves are now beginning to visit the stubble fields. I have not seen so many as usual in this neighbourhood lately, but it is said that they have suddenly become abundant in other parts of the island. A pigeon, coloured light brown and white, was seen accompanying a flock of rock doves to the cliffs of Balta some weeks ago. This was in all probability one which had escaped from a dovecote, but such cases are of very unusual occurrence.

Cormorant.—Cormorants are now returning to the voes and inlets, and a few may occasionally be seen in the lochs. The greater number are of course immature birds; adults are so shy of the land that comparatively few fall into the hands of collectors. The cormorant is very easily domesticated, and when treated with kindness it becomes exceedingly docile, exhibiting a very high degree of intelligence, and an amount of affection scarcely to be expected from a bird which in its wild state is remarkable for its extreme shyness of man. Some years ago a very young male was taken from one of the North Skerries and brought to Halligarth, where he soon became a most interesting pet. At first he required careful feeding, for it was some weeks before he became aware that the opening of his bill was the necessary preliminary to every meal; he would appear eager for food, and, uttering the usual peculiar cry, would strike at whatever was offered him with his closed bill; and in this manner he would have starved, but for human aid. Afterwards he caused but little trouble, for when the ducks were fed he would rush boldly among them, and appropriate anything in the shape of fish or flesh which happened to suit his fancy. Sometimes also, when he saw a boy coming to the house with fish, he would waylay him, and, if no contribution were then offered, he would speedily settle the matter by helping himself. One day, when food was very scarce and he had been fasting for many hours, I happened to pass by, carrying a number of starlings, one of which I tossed to him, but scarcely with the expectation that it would be accepted. However, he caught it cleverly before it could reach the ground, and next instant it disappeared down his capacious throat; another followed, and was treated in the same manner, then more, until no less than five had been thus disposed of. This number appeared to satisfy him, and, the whole neck being now enormously distended, it was with difficulty that he waddled away to his favourite corner of the coal-shed, where I left him sitting, face to the wall, upon a lump of coal, the legs of the last starling still projecting from the corner of his mouth. After this a bird was always a favourite morsel, and he would follow me for a long distance when I happened to be carrying a gun. Once I gave him, for a single meal, two buntings, a twite, a sparrow, two snow buntings, and a ringed plover, and even then he followed me for more. Birds, fish and mice were always swallowed head foremost. During the first two years he kept almost entirely to the ground, only occasionally sitting upon a stone or a low wall, but afterwards the roof of the house was preferred, from which elevated position he used suddenly to pounce down, either to rob a fish-basket or to scatter a company of feeding ducks. But this was merely as a diversion, not as a necessity, for at the time when he first took up his position on the roof, he also commenced regularly to procure his own meals, flying to the voe for that purpose, and, after remaining there for an hour or two, returning to his former station by the chimney. He never showed any desire to escape, but, on the contrary, he became more and more attached to his human friends. Strangers who attempted to handle him ran the risk of becoming acquainted with the sharpness of his mandibles, and of being scared by the unearthly croaking which always accompanied the bite. Being one of his especial friends, I was permitted to stroke and handle him with impunity, and he would even fly several hundred yards to meet me when I called him. The kitchen fire was his great delight, and he would bask near it for hours; but at such times it was imprudent to leave either fish or flesh within his reach. Once he carried off a newly-skinned rabbit, and at another time he attacked a living duck, and even succeeded in swallowing the head and part of the neck before a rescue could be effected. He would sometimes extend his explorations beyond the kitchen, wandering through the passages as calmly as if the house were his own, but always betraying himself by the loud flap, flap, of his great webbed feet upon the flags. For about the first year of his life the iris of the eye was of a brownish colour, then it became pale bluish green, and towards the end of the second twelvemonth bright emerald-green. During the third year he rapidly acquired his adult plumage, but just as this was approaching its perfection he was unfortunately killed by an old half-blind dog, which in former days had been celebrated for his address in seizing and killing wounded cormorants.

HENRY L. SAXBY.

Baltasound, Shetland,
September 30, 1864.

Ornithological Notes from Norfolk. By H. STEVENSON, Esq.

Little Bittern.—A very fine specimen, in perfect plumage, of this rare species, was killed off a "rand" on Horsey Mere, on the 3rd of September; and a bird, supposed, by its general colouring, to have been a roller, was also observed at Horsey about the same time; but of this I can give no more satisfactory information.

Honey Buzzard and Osprey.—A young male honey buzzard, very prettily marked about the head and neck, each feather being slightly, but distinctly, tipped with white, was sent to one of our bird-preservers in this city on the 26th of September, having been killed somewhere in Norfolk; and a fine adult osprey was shot in Ditchingham Park on the 29th of the same month.

Cormorant and Manx Shearwater.—On the 10th of October a young cormorant was brought to me in the flesh, which had been shot on the previous day at Coldham Hall, a ferry on the river Yare, about five miles from Norwich. This bird had been seen in that neighbourhood for a day or two before it was shot, and was killed off a tree, on which it usually settled when driven off the river by the swans, who attacked it fiercely in their own element. The appearance of this species at the present day, so far from the coast, is very unusual, and of late years examples have been extremely scarce, even in severe winters. This poor bird in no way deserved its name, having nothing in its stomach but about eight or ten small worms about the size of packthread, and nearly two inches long, some of which were still living when touched. A manx shearwater, also a rare bird in Norfolk, was shot at Yarmouth about the same time.

Nutcracker.—A specimen of this rare visitant to our shores was shot off a tree in a garden at Gorlestone, near Yarmouth, on the 8th of October, as I learn from the Rev. C. J. Lucas, of Burgh, in whose possession it now is. I saw this bird in the flesh, and on dissection found it to be a male in fine condition, the stomach (very muscular in texture) being filled with the remains of a large dung-beetle (*Geotrupes stercorarius*). This is the third recorded instance of the appearance of this bird in Norfolk; the first, in Mr. Gurney's collection, having been killed at Rollesby, near Yarmouth, on the 30th of October, 1844 (see Zool. 824, and a subsequent paper by Mr. W. R. Fisher, on the same example, Zool. 1073); and the second, which was seen in the flesh by the Editor of the 'Zoologist,' is recorded (Zool. 4097) as killed off Yarmouth on the 7th of October, 1853. I cannot now ascertain whether this specimen had a thin or a thick bill, but it is worthy of note that the Rollesby and Gorlestone birds, and one killed at Wisbech, November 8th, 1859 (Zool. 6809), as noticed by Mr. F. W. Foster, of the Wisbech Museum, had all thin bills, and two out of the three (the sex of Mr. Gurney's, singularly enough, not being stated, although the contents of the stomach are said to have been coleopterous insects) were males. I have particularly mentioned these facts, since it is by no means satisfactorily decided at present whether the thick and thin-billed nutcrackers are specifically distinct, or whether, as in the case of the Neomorpha Gouldii of Australia, the difference in the form of the beak is merely a sexual distinction. I should be particularly glad of any authentic information as to the ascertained sex or sexes of any thick-billed nutcrackers, whether killed in England or abroad.

Spoonbills, Richardson's Skua, and Eider Duck.—A young Richardson's skua, a bird of the year, was shot at Yarmouth on the 5th of October; and on or about the 25th two young spoonbills, with scarcely any perceptible crest, were shot, one on Breydon and the other on Hickling Broad; the latter, now in the Norwich Museum, had the irides light gray, not rich red as in old specimens. On the 11th of November a young eider duck, in very poor condition, the stomach and gizzard being quite empty, was shot on Hickling Broad. This bird is very rare on our coast.

HENRY STEVENSON.

Norwich, November 14, 1864.

Ornithological Notes from Ulceby, Lincolnshire.

By JOHN CORDEAUX, Esq.

Blackbird, Redwing, &c. — In this open and exposed district, which contains but few plantations or hedgerows, blackbirds, redwings, thrushes, &c., resort, during the winter months, to some favourite roosting-place, often far removed from their daily haunts, there to spend the night in safety, till the first dawn of day calls them away again. There is one such place in this parish, a small plantation of spruce and larch, not more than two acres in extent. The trees are from ten to twelve feet high, and the thick, dense boughs of the young spruce, feathered down to the ground, make an admirable roosting-place for the hundreds of the Merulidæ which resort thither for shelter during the long winter nights. I have frequently passed through this covert, when shooting, without seeing a single blackbird or redwing; but the case is very different towards the close of a short winter's day; then, on all the tall hedgerows which converge towards the corner of the plantation facing the open country, numbers of blackbirds, redwings, &c., may be seen moving by short stages from their favourite haunts and feeding-grounds to the vicinity of the little plantation. The other day (November 28th) I tried to ascertain the number of blackbirds which frequented this spot for a night's lodgings, and in the afternoon took up a position in an open spot in the covert, not far from the narrow corner which faced the open country. On my way down I had already put up several blackbirds from the hedgerows, which had all gone into the covert. It was just half-past three o'clock, and an unusually dark and gloomy afternoon. Concealing myself amongst the thick branches of a young spruce, I counted the blackbirds as they flew past. During the first twenty minutes they kept dropping in one by one, sometimes nearly a full minute occurring between the arrivals. During the next ten minutes the number was greatly increased; they were constantly passing in, and by four o'clock I had counted one hundred past, and of this number seventy during the last ten minutes. By a quarter-past four the last blackbird had come in, making altogether one hundred and thirty-eight, an extraordinary number considering the open character of the country, and this exclusive of many more which doubtless came in at other places. From half-past three until half-past four the redwings kept constantly passing in, in small parties, from two and three to twenty together. I cannot speak positively to the number of redwings, as it was quite impossible to count them, my time being fully occupied by the blackbirds; but there certainly could not have been less than ten redwings to one blackbird. Occasionally I detected a thrush which came in alone, but very few; and no fieldfares, although the latter birds are found in great numbers during the day, feeding in the low meadow-grounds in the neighbourhood. Numerous flocks of linnets, greenfinches and chaffinches also passed in, seeking the friendly shade of the dark spruce. The blackbirds invariably entered the plantation flying low down amongst the tree-tops, and then dashed suddenly down into the deeper shades below. The redwings, as a rule, flew higher, would perch for a moment on the outer rows of trees, and then fly forward again; several perched, within a yard of my position, on the slender boughs of a young larch, to the great astonishment of the retriever at my feet, who seemed fairly puzzled at their conduct. What was most remarkable was the almost perfect silence with which this large company of birds settled down for the night; only the occasional, simple, low note of a blackbird was heard, as if quarrelling with his neighbour on the adjoining bough. The latest birds in were the redwings. Then came the whistling of wings overhead, and the forms of the peewits could be dimly discerned as they went flapping past to their feeding-grounds on the higher lands; and sometimes the swift rush and melancholy note of the golden plover sounded high above in the gathering gloom. It was surprising to see the ease with which the green plover detected me, almost concealed as I was in the dark covert, and partly shrouded in the thick spruce-boughs; scarcely a flock passed over without swerving rapidly on one side, and this at a time when I could only barely distinguish them by the white gleam of the under parts.

JOHN CORDEAUX.

Great Cotes, Ulceby, Lincolnshire.

Some further Notes on the Birds which Breed on Walney Island.

By J. EDMUND HARTING, Esq.

I AM pleased to see (Zool. 9321) the observations of Mr. Ecroyd Smith with regard to the birds found breeding on Walney and the adjacent islands.

In many cases I believe the truth is only to be arrived at by comparing the notes of different observers at different times, and therefore I am glad that my notes (Zool. 9156) have not been left entirely without comment.

Mr. Ecroyd Smith points out some singular differences between his observations and my own, and I should like therefore to offer a few remarks upon his notes, taking them in the order in which he has given them. I would first observe, however, that, considering I visited Walney Island only a few days beforehand, and worked the ground thoroughly, especially the western shore, quartering it, in fact, like a pointer, I am not surprised that Mr. Ecroyd Smith experienced some little disappointment in his search, and found comparatively so few eggs.

In commenting upon his notes I cannot do better than pursue the plan which he has adopted, and place his observations in inverted commas, for the sake of distinction.

Common Tern.—With reference to my remark that I had disturbed the birds from their eggs, he says :—

"June 3, 1863. None seen on or near their eggs. 10—12 A.M."

"June 9, 1864. None seen on or near their eggs. 10 A.M.—2 P.M."

I have referred to my note-book, and find that I made no memorandum of the *time* at which the birds were on their eggs, but, considering that I was on the island by 5 A.M., I think it must have been about 9 A.M. when I found the first common tern's eggs, and saw the birds rise from the ground. I can only find one line in my note-book in which I have made any mention of time, and that is as follows : — "11 o'clock. Sandwiches (lunch—not terns)." Before this hour I had collected by far the greater number of common tern's eggs, had seen the birds rise from the ground, and had shot one of them. I would now suggest that perhaps the birds cover their eggs until the sun has acquired sufficient power to heat them and the pebbles or sand on which they lie, and that they then leave them for the purpose of fishing. I remember to have seen the blackheaded gulls and Sandwich terns on their nests between 6 and 7 A.M.

"1863. No nest."

"1864. But few eggs deposited on the bare pebbles, or even sand, and these invariably in hollows."

In this we appear to agree, and are confirmed by Dr. Saxby, who, I am glad to see, has made some observations upon this point in his "Ornithological Notes from Shetland" (Zool. 9313).

"1863. In every instance *outside* (seaward) of the sand-hills."

"1864. Mostly *outside* the sand-hills."

It is very singular that in no instance did I find eggs of the common tern outside the sand-hills: they were all on the *inside*, sheltered from the wind, and out of sight of the sea; and this struck me at the time as being so remarkable that I made a note of it, with a view of ascertaining whether the common tern invariably breeds in more sheltered situations than some of its congeners, as for instance the lesser tern, which was only found breeding *outside* the sand-hills, and exposed to wind and wave. Had Mr. Ecroyd Smith made no observations in 1863, but merely visited the island after I left it this spring, I should not have been quite so much surprised at his finding some eggs of the common tern outside the sand-hills, on the supposition that the birds had shifted their ground in consequence of having been robbed. But since their eggs were also found outside the sand-hills in 1863, I must needs infer that the common tern does not always lay in such sheltered situations as I had supposed.

Lesser Tern (Provincial, Sea-mouse.) "1863—4. A few birds; no eggs found."

The only three nests which I found were all *outside* of the sand-hills, and I made a memorandum of this at the time, as being worthy of note. These eggs were found before 11 A.M., and the birds were not then sitting. I regret now that I did not pay more attention to the hours at which the birds were incubating.

Arctic Tern.—"1863—4. No certain nestings. My friend Mr. A. Cooke doubts either this or the following species (roseate) breeding here: he regards the shooting of a bird in *mere proximity* to any nest by no means conclusive as to the parentage of the eggs, and that nothing short of capture upon the nest or eggs can be held conclusive."

The plan which I pursued to obtain eggs of this species was as follows. On observing a bird upon the ground, or seeing one alight, I proceeded rapidly towards it in a direct line, and, as soon as it rose, fired at it. Several times, from being in too great a hurry, I missed the bird, but eventually succeeded in killing three. In two instances the birds dropped at some considerable distance from where they rose, but leaving them on the ground, and, without having altered my direction or the position I was in at the time the bird rose, I went directly to the spot and found eggs. Pencilling these and putting them in a basket, I went to pick up the birds. These proving to be arctic terns, I felt no hesitation in concluding that the eggs were eggs of that species. I have read somewhere, but cannot at present recollect where, that, in the opinion of some naturalists, the guillemot, which breeds in colonies, does not always return to the egg which it left, but, being led by instinct to cover an egg, it settles down upon one, without being particular whether it is its own or not. If this be the case with the terns, it must be quite impossible to distinguish eggs of the common, arctic and roseate species, when placed in proximity. But I do not suppose that this is so; on the contrary, I am inclined to believe that every bird has the power of distinguishing its own eggs; and it appears to me not improbable that the reason we find hardly two eggs of the guillemot alike is that Nature has thus ordained it, to enable the birds more readily to distinguish them when laid close together in numbers on the bare cliff. I am, therefore, yet of the opinion that if a bird is observed sitting on the ground, is seen to rise and is shot, and, on proceeding to the spot from which it rose, eggs are found, we may fairly presume the eggs to be those of the species killed. Mr. A Cooke considers that "nothing short of capture upon the nest or eggs can be held conclusive." But if we were always to follow that rule, we should sometimes have to wait a long time before we could add many species of eggs to our collection. I think that, in most cases, if a bird is seen on or near the eggs, we may fairly presume that the eggs are those of the bird.

With regard to the breeding of the oystercatcher, ring plover, shieldrake, and a few other birds mentioned by Mr. Ecroyd Smith, we appear to agree in material points, with this exception,—that whereas out of more than a dozen nestings of the oystercatcher which I found last May, only one of them was formed with shells, the others being mere hollows scooped in the sand, Mr. Ecroyd Smith observed that this bird, besides using bits of shell, occasionally employs fragments of drift-wood and sea-weed in the lining of its nest.

In conclusion, I am quite of the opinion that we ought not to dogmatize on observations made in any single locality, which may be far from presenting us with the truth, but should rather offer our notes with the view of comparing them with the observations of others, and thus elicit information which will tend to prove general facts.

J. EDMUND HARTING.

Kingsbury, Middlesex,
November 11, 1864.

On the Power possessed by Birds, natives of warm climates, to resist with impunity the cold of higher latitudes. By J. JENNER WEIR, Esq.

IT is well known that natatorial and grallatorial birds have their bodies clothed with down in far greater abundance than birds which seek their sustenance entirely on land; and doubtless this warmer clothing enables them to combat with the damp and cold by which they are in their haunts continually surrounded.

When, however, insessorial birds from hot countries are contrasted in this respect with those from temperate or even cold countries, this distinction in the relative warmth of their clothing does not appear to exist.

There are a few families of insessorial birds which are distributed nearly over the globe, and many throughout the Northern Hemisphere, except of course in the highest latitudes.

The extensive family of finches (*Fringillidæ*) is cosmopolitan, being represented by species in the most northern districts in which birds can exist, both in the New and Old World, and being found as far south as New Zealand and South Georgia; most islands also are inhabited by species of this numerous family; the Gallapagos, for instance, have a genus—Geospiza—peculiar to them, and many of the islets have peculiar species of that genus. The African Atlantic Islands also have peculiar species of the restricted typical genus Fringilla, and also of other genera, such as Crithagra and Estrelda.

A single genus may exist through all the degrees of latitude from the temperate regions to the tropics, and so may even a single species. The sparrows (*Passer*), for instance, are found in abundance in Northern Europe. The Indian house sparrow (*Passer Indicus*), although inhabiting the greater part of India, differs but little from our common house sparrow (*P. domesticus*); and our other indigenous species, the tree sparrow (*P. montanus*), is found also eight degrees south of the Equator, being the common sparrow of Java; it has also been observed in Arracan, China, Japan, and thence westward in the Himalayas, Affghanistan, Erzeroum, and through Europe to these Isles.

Another species—Passer simplex—is found in the hottest parts of Western Africa.

It does not appear that species inhabiting cold climates are more warmly clothed than those found in very hot regions. To illustrate this point compare the plumage of the Javan grosbeak (*Padda oryzivora*) with that of the siskin (*Carduelis spinus*); the tropical species would appear even to have the advantage of a warm clothing, the feathers being remarkably closely arranged; yet it is found in Java and the hottest parts of India, while the siskin is found commonly in Norway and Sweden, visiting this country only in the winter.

Climate, therefore, has little influence in the geographical distribution of the family of birds under consideration, except indirectly, as will be shown.

Why, therefore, it may be asked, is the large sub-family of Tanagrinæ confined chiefly to the warmer parts of America? The answer is this,—they feed very much on insects, and therefore can only exist where that food is abundant; so that the absence of insect life in high latitudes, during the winter months, is fatal to the existence there of the most insectivorous and least granivorous of all the finches.

But it may be replied that the Javan grosbeak feeds entirely on seeds, and yet its geographical distribution does not extend to temperate regions. This is true; but as its food is mainly confined to the very driest kinds, such as rice and millet, and as it is not found to eat any green food, it can only exist in very hot countries, like India, where the supply of seeds of this character is perennial.

Why, then, is it that the Passer montanus of Java is also tolerably common in England? The reply is that it is nearly omnivorous; it will eat most kinds of seeds whether oleaginous or farinaceous, many vegetables, insects, and even flesh; and, also, it passes the night in holes in trees, well lined with hay and feathers, which it conveys there during the winter months for the purpose of warmth.

To test the effect of cold upon birds which naturally are not found beyond the tropics, the following experiment was made at Blackheath.

In the angle of a house an aviary was constructed, having the top and one side of glass, the front being secured by open wire-work: old materials were used in its construction, and no part fitted very accurately, so that there were many draughts: during the most inclement weather a piece of American imitation leather was hung in front to keep out the wet, but, as this was flapped by every gust of wind, it kept out but little cold air.

The aspect of the open side was nearly south-west, but, as the rays of the sun were much intercepted by trees, the situation could scarcely be considered favourable for warmth.

The experiment was commenced in the autumn of 1863, and was continued through the winter of 1863—4, which was very severe.

It was with difficulty that, on many days, water could be kept liquid sufficiently long to enable the birds to drink; this was generally effected by placing the fountain on a hot tile during the day, and removing it at night.

The birds experimented on were the Javan grosbeak (*Padda oryzivora*), before adverted to—two specimens, male and female; the rufous-necked weaver-bird (*Hyphantornis textor*), from Western Africa—two specimens, both males; the red-beaked weaver-bird (*Euplectes sanguinirostris*), also from Western Africa—male and female; and the blue-bird (*Spiza cyanea*), from the warmer parts of North America. In addition the aviary contained nearly all the British finches, including the Passer montanus before adverted to.

The success was complete: none of the foreign birds showed any symptoms of distress, and at the end of the winter were in the most robust health; it seemed, indeed, that they bore the severe cold better than some of our indigenous species, such as the yellowhammer (*Emberiza citrinella*) and the cirl bunting (*E. cirlus*), but this might have arisen from the usual sluggish nature of the buntings.

If, therefore, birds from the tropics can survive the cold of so severe a winter as 1863—4, under the unfavourable conditions of exposure and confinement, by which their natural exercise is very much restricted, and their food not being of so varied a kind as in a wild state, and therefore neither so nutritious nor so well adapted to their constitutions, it may reasonably be inferred that the absence of proper food is the main reason why, in this country, so few birds are found which naturally inhabit tropical regions.

It must, however, be admitted that purely insectivorous birds, such as the nightingale (*Philomela luscinia*), blackcap (*Curruca atricapilla*), and other Sylviadæ, are much less able to bear exposure than granivorous species, and I think this applies to nearly all the Dentirostres: their differentiation from the Conirostres probably took place at a very remote time, and their constitutions have become adapted to warm climates only; yet even in this tribe there are species, such as the wagtails (*Motacillæ*), the robin (*Erythaca rubecula*), the stonechat (*Saxicola rubicola*), that remain in Britain the whole of the winter.

But any experiment made upon such species in an aviary would be incomplete, because of the great difficulty of keeping any insectivorous bird in confinement, even during the summer months.

It is not, therefore, urged that climate has no direct effect in the geographical distribution of birds, but that it has much less effect than is generally supposed, and doubtless numbers of birds perish annually, even in our exceedingly well-managed Zoological Gardens, from the close, warm, impure atmosphere of the bird-room, that would be living in perfect health in the open air of the aviary.

J. Jenner Weir.

Haddo Villas, Blackheath.

The Autumnal Migration at the Land's End, Cornwall. — I have had a conversation with our townsman, Mr. Michael Roberts, who is a preserver and collector of birds, and is conversant with our native birds. He is now employed as an officer under the Trinity Board, in connexion with the new granite lighthouse now in course of erection at the celebrated Wolf Rock, which is situate about nine miles to the south west of the Logan Rock, and about the same distance from the Land's End. He is in the habit of going to and fro, in fine weather, the Rock, and generally remains there the whole day till towards evening. He called my attention to the arrival of some of our smaller birds during the first week in November, which, at different times, and in twos and threes, passed the Rock, some alighting, and others flying close by and towards the land. In every instance the birds came from a south-westerly direction, from the direction of Scilly, and not from north to south. Singular enough, these birds consisted of robins, wrens, and a few whitethroats and willow wrens, and also linnets, starlings, fieldfares and redwings. They flew so close to the lighter where he was that they were perfectly distinct, and some of the men caught a whitethroat and let it fly again. Michael Roberts observed two wrens alight, and they jumped about with their tails erect, and were off again in a few minutes. These arrivals were at different times and on different days, but the movements of all were from south to north. There is yet a considerable mystery about the *lex migratorius.* We can understand in some measure why some large flights of woodcocks and snipes appear here with a south-east wind, and others with a north and north-east wind. They are, I think, both a part and parcel of the great migratorial movement from the north to the south. The north and north-east winds bring down, in a tolerably direct line, to the Lizard, Land's End, Scilly Isles and Irish districts, the body of birds from Norway, Sweden, &c. There is no doubt a similar flight from the northern countries of Russia in Europe and Asia; and these birds, in the course of their southward flight to Albania, Egypt, &c., with a strong east or south-east wind, are quite likely to adopt a lateral course, which would very soon bring them to the shores of Great Britain; but then comes the question, How come the small birds in separate troops, during intervals in a week in the early part of November, from the south? The only way that it can be at all accounted for is that all these birds might have encountered an adverse wind, or perhaps current, in going south, and thus were driven back; but then comes also the fact that the weather was apparently as tranquil, and as free from storms and tempests, as at midsummer, and there was no appearance of exhaustion in the birds. We are all, as naturalists, interested in the subject of migration, and I have mentioned the above fact not only as likely, probably, to afford some interest, but also to elicit from your other correspondents their views and suggestions, which will very materially add to the development of the secret.—*Edward Hearle Rodd; Penzance, December* 6, 1864.

Redfooted Falcon, or Orangelegged Hobby, at the Mouth of the Humber.—During the first week of November last, 1864, a female specimen of this extremely rare falcon was shot by a sailor from his ship, as the bird was hovering over the vessel. This was at the time the ship was entering the mouth of the Humber. The sailor took the bird for preservation to a birdstuffer at Hull, whilst it was in the flesh. The birdstuffer, not knowing the species, mentioned it to Mr. Richardson, of Beverley, who gave me a description of the hawk. I recognized the species at once, and have succeeded in purchasing the bird. It was forwarded to me this day, November 8th, 1864, and is still quite soft and pliable. It is a very perfect specimen of the redfooted falcon, and, judging by the plumage, I should pronounce it to be a mature female.—*W. W. Boulton; Beverley, November* 8, 1864.

Osprey in Bucks and Hertfordshire, and Great Gray Shrike and Cirl Bunting in Bucks.—During the greater part of the month of September a pair of ospreys frequented the large reservoirs of the Paddington Canal Company, which are situated in the parishes of Wilstone, a hamlet of Tring, Herts, and Marsworth, Bucks. They were very tame, and used to take fish in the reservoirs, and in the two canals which adjoin them, whilst persons were standing close by. I had earnestly hoped that they might have been allowed to remain in peace, but I could not help being afraid that their fearless and sociable habits would in the end prove fatal. My suspicions proved but too true, for on September 30th the female bird was shot by a country lad whilst fishing in the canal at Wilstone. The lad, ignorant of the value of his prize, sold it to a broker at Aylesbury for 4*s*. It thence passed into the hands of Mr. James, of Halton, who sent it to the village birdstuffer; the latter unfortunately placed it on the floor of his outhouse, where, during the night, a rat managed to get in and terribly mutilated the head. Mr. James, as soon as he knew of the interest I took in the bird, kindly presented me with the skin. It is now in the hands of a clever birdstuffer, and, with the aid of a skin which has been kindly presented to me by a friend, I hope the damage may be remedied. In other respects the specimen is a very fine one. It appears to be a last year's bird: the male was seen about a week after the female was shot, but then disappeared. Mr. Gould tells me that about that time a male osprey was killed on the Thames at Maidenhead. There can be little doubt that this was the male of my bird. It is rather singular that rather more than ten years ago, in 1853, a third specimen of the osprey was killed on the banks of the canal at Halton, a small village about three miles from hence. It was shot by a labouring man whilst in the act of devouring a dead pigeon which had been thrown on the towing-path out of an adjoining dove-cote. This specimen is now in the possession of Sir Anthony de Rothschild, Bart.—On the 5th of November a very fine male specimen of the great gray shrike was brought to me in the flesh. It had been killed the previous day, by a labouring man, in the parish of Weston-Turville, about four miles from hence. On the 17th the skin of the female bird was brought to me. It had been shot in the adjoining parish of Windorn, about a week previously. — On June 4th, whilst walking with my sisters on a rough grassy down in this parish, one of the latter found a cirl bunting's nest, containing three eggs, in one of the juniper bushes with which our downs are in some places thickly sprinkled. I saw the female bird leave the nest, and have therefore no doubt on the matter. I have an idea that this bird is not uncommon on the downs in this neighbourhood. I have several times noticed the male bird in winter and spring, and have twice had specimens brought me which had been killed with other birds in the farm-yards in winter.—*H. Harpur Crewe; The Rectory, Drayton-Beauchamp, Tring, November* 28, 1864.

Merlin near Beverley.—On August 5th, 1864, a beautiful specimen of this, the smallest British falcon, was shot by William Holmes, farmer, of Arram, near Beverley, in the immediate vicinity of that village. It was sent to me in the flesh, and on dissection proved to be an immature female. I have never seen but two other specimens of this falcon shot in this part of the East Riding. Both of them were females; one was an old bird, the other a bird of the year; and both are in my own collection. *W. W. Boulton; Beverley.*

Voracity of young Sparrowhawks.—I have in my possession a fine female sparrowhawk and six young ones, which Mr. Wilson, of Woodsome Hall, steward to the Earl of Dartmouth, gave me. I will give his history of them :—" One evening last June I was out rabbit-shooting, and on returning home through the wood my attention was drawn to a thrush (*Turdus musicus*) that was chattering, evidently annoyed at something. I had the curiosity to try and find out the cause. Going in the direction of the noise, I saw a hawk fly out of a tree, and, looking round, I saw a nest in a low tree; from its appearance I believed it to contain young hawks. Stopping near the tree, with gun in hand, the old bird kept flying round; at last it alighted on the top of a tree within shot. I let go, and brought it down. I gathered the bird, and then went up the tree, and found six young hawks, just in white down, which I left. On my way home I met one of the members of the Huddersfield Naturalists' Society, and gave him the bird I had shot, which he pronounced to be a female sparrowhawk (*Falco nisus*). I told him if he would send to my house on the day but one following, I would give him the young ones, with the other parent, if we could get it. The next morning I took the watchers to show them the nest: one of them went up the tree, and found three small birds laid on the young hawks. I gave orders to the men that one of them should be near the nest on the following morning at break of day, and try to shoot the other bird: he went and waited several hours, but never saw it: according to my orders, he then went up the tree to take the young ones, and found no less than fourteen young birds, chiefly sparrows, laid on the young ones, and they were all dead. The only inference I can draw is this, — that the male bird has to provide the food, and the duty of the female is to stay near the young and feed them, and because she was wanting they all died in the midst of plenty. I may add that the birds were all stuffed, and the young ones put into a nice nest, the female standing by tearing up a sparrow and feeding her young. A male bird of the same kind is introduced into the case, and they have been exhibited during the Exhibition of the Huddersfield Naturalists' Society, which was opened by the Earl of Dartmouth on the 14th of October, where they have been admired by thousands." Thinking the history of the hawks might interest some of the readers of the 'Zoologist,' I forward it for publication. — *James Varley; Almondbury Bank, Huddersfield, November* 14, 1864.

Common Buzzard in the East of Cornwall. — A great number of the common buzzard have made their appearance in the eastern part of the county, over a large area of country, during the late easterly winds. The appearance of all our birds of prey is always interesting, from their natural wild character, as well as from their form, plumage, habits and flight. In looking at the economy of Nature in all her productions, very little trouble is necessary to find the law of compensation apply in a more or less degree to every creature; thus, in the common buzzard, the contents of the craw of one lately preserved by Mr. Vingoe showed predatory mischief only in the capture of a blind snake and a mole.—*Edward Hearle Rodd; November* 5, 1864.

Honey Buzzard near Beverley.—During the latter part of September last, I added to my collection two fine specimens of the honey buzzard. Both of these birds were shot near Beverley, and within three miles of one another. The first was shot on September 22nd, 1864, and was sent to me in the flesh. In colour it was light brown, excepting the primaries, which were blackish brown. Many of the feathers were edged or tipped with a creamy gray colour, especially on the nape and beneath the chin. This bird proved, on dissection, to be an immature male. The stomach contained the remains of one of the Coleoptera only. The second specimen was shot on September 26th, 1864, and was also sent to me in the flesh. In colour it appeared to me most peculiar, although I am aware how liable these birds are to vary in plumage. It was of a uniform dark blackish brown colour throughout. In size it was rather larger than the first specimen. On dissection I found that it was an immature male, I should say about the same age as the first specimen, although so different in colour. Its craw and stomach were both filled to distention with wasp-grubs, on which it must have been feeding immediately before its capture. The iris in both these birds was very dark brown or hazel.—*W. W. Boulton; Beverley, November* 1, 1864.

Great Gray Shrike near Beverley.—On October 7th, 1864, a splendid old male specimen of this species, in full plumage, was shot by one of the farm-servants in the employ of Mr. Cressey, of Frodingham, on Mr. Cressey's farm. Frodingham is a village fourteen miles from Beverley. I am informed that the bird was extremely shy and wary, and was only shot at last by careful stalking. I have secured the specimen for my own collection. It is the fourth I have seen that had been shot in this neighbourhood, three of which are in my own collection.—*Id.*

Great Gray Shrike at Preston.—A fine female was shot near here last month, in the same district that one was shot three years ago.—*J. B. Hodgkinson;* 31, *Christ Church Street, Preston.*

Parti-coloured Blackbird.—My attention has been drawn by a farmer, a neighbour of mine, to a blackbird, whose haunt is a low hedge in a cow-pasture and close to the pond. It is beautifully marked with white. On the breast there are several white feathers, which are in shape like a crescent. The wings are also barred with white, and two of the tail-feathers are of the same colour. I have had several opportunities of seeing this pretty bird.—*J. Ranson; Linton-on-Ouse, York.*

The Roller in Lincolnshire.—A specimen, evidently in immature plumage, was shot at Louth, in North Lincolnshire, in October, 1863, and is now in my possession. —*Thomas H. Allis; York, November,* 1864.

Late Stay of Swallows.—On Saturday morning, November 5th, about 11 o'clock, I observed three swallows hawking for insects, and apparently as active on the wing as in the summer time. There had been a frost on the previous night: the morning was bright, and temperature about 42° in the shade, when I noticed the birds. Perhaps there is nothing very unusual in the appearance of these birds so late in the season, but it seemed to me so contrary to their usual habits that, while performing my daily avocations, I could not help stopping for a few minutes to witness the evolutions of these interesting little creatures.—*James Dutton; Hammersmith, November* 11.

Late Swallow.—On the 11th of this month a swallow flew within four or five feet of me: a friend standing with me saw it as well. As this is very late for this species, I thought it might be worthy of mention.—*E. D. Hamel; Bole Hall, November* 21.

Note on the late Nesting of the Wood Pigeon near Worthing.—A pair of young wood pigeons were taken from the nest, in the neighbourhood of Worthing, on the 10th of November, 1864.—*J. H. Gurney; November,* 1864.

Creamcoloured Courser in Cumberland.—A specimen of this very rare British bird was killed at Allonby, near Maryport, in October, 1864, and is now in my possession. —*Thomas H. Allis; York, November,* 1864.

Purple Gallinule in Hampshire.—A specimen of the purple gallinule was shot by Mr. Charles Stares, on the 10th of August, 1863, in the marshes of The Grange, in the parish of Rowner, Hants, while shooting flappers.—*William Stares; December* 1.

Spoonbill on the Coast of Norfolk.—About the 27th of October last an immature specimen of this species was killed at Hickling. It was purchased by a gentleman and presented to the Norwich Museum. It is now in the hands of Mr. T. Knights, birdstuffer, of this city, for preservation. A second individual was seen about the same time in the neighbourhood of Burgh St. Peter, near Great Yarmouth: it was shot at, but not hit, as the bird succeeded in making its escape. An immature male (in all probability the same individual) was shot a short time afterwards by a young man, at the village of Freethorpe, a few miles distant from the last-named place: it measured 32 inches from the tip of its bill to the end of its tail, and 4 feet 8 inches across its wings to the point of each. The stomach was empty.—*T. E. Gunn.*

Bittern near Epworth, Bawtry. — I have just seen a very fine example of the bittern, shot to-day by Mr. T. Bletcher, on his farm near Epworth, who has placed it in the hands of Mr. H. Gravil, of this town, for preservation. About thirty years since this magnificent species was very abundant here, but the improved drainage has caused their visits to be few and far between. One specimen was shot here last year. I am truly sorry that this, one of our noblest species, should be so fast disappearing from among us.—*Samuel Hudson; Epworth, Bawtry, November* 14, 1864.

Squacco Heron near Yarmouth.— On the 8th of July, 1864, during a short stay in London, I obtained a splendid specimen of the adult squacco heron in the flesh. It was killed near Yarmouth on the previous day by a gardener, and forwarded by him to Mr. Ward, of Vere Street. The weather being very hot at that time, I had the bird skinned at once, and upon dissection it proved to be a male. The plumage was peculiarly rich and fine; in fact I never saw so good a specimen. It has been very beautifully set up by Mr. Henry Shaw, of Shrewsbury, and is now in my collection.—*John Rocke; Clungunford House, Shropshire.*

Great Northern Diver on the Sussex Coast.— I have to-day seen a specimen of the great northern diver in the flesh, which had been recently killed off the coast. From the plumage I should take it to be a young male, the general colour of the upper parts being ash-gray, the rings on the neck faintly visible.—*W. Jeffery, jun.; November* 23.

Leach's Stormy Petrel at Worthing. —A specimen of Leach's stormy petrel was picked up exhausted, on the beach at Worthing, on the 21st of November, 1864: the bird was in good plumage, but much emaciated.—*J. H. Gurney.*

Habit and Description of the Larva of Acidalia immutata.—I received eggs of this species from Dr. Knaggs on the 18th of July, 1863, and the larva hatched on the 22nd. They chose for their food Polygonum aviculare, but did not attain any great size before hybernating. Through the winter they rested on the withered stems of their food-plant, and did not begin to feed again in spring till the young seedlings of the Polygonum had put out their second pair of leaves, when they seemed to find out that it was time to commence eating again. They attained their full growth during the last week in May and first week in June of the present summer, and spun themselves up in silken cocoons under some short moss which had grown up on the surface of the earth in their flower-pot. The first moth emerged on the 2nd of July. When full grown the larva is about 1⅛ inch long. In shape cylindrical, slightly puffed at the spiracles, tapering evenly towards the head, which is small and round; the whole skin is ribbed in rings, which go quite round the body. The ground colour is a warm stone-coloured tint, and there is a dusky dorsal line forming two small dots at each segmental division; above the spiracles an irregular double dusky line; spiracles black, placed in a stripe, rather paler than the ground colour, below which comes another dusky line, darkest on its upper edge and fading off below. The larva described above in structure and colouring resembles those of Acidalia fumata, A. promutata and A. imitaria, except that the two last are longer; and it is altogether different from the type furnished by the shorter, stiff and flattish larvæ of A. subsericeata, A. incanata, A. aversata, A. inornata and A. osseata.—*Rev. J. Hellins, Exeter, in 'Entomologist's Monthly Magazine.'*

Description of the Larva of Tethea subtusa.—The eggs of this species are probably laid at the end of July and throughout August, on the young twigs of poplar. The larva hatches in the folllowing spring, as soon as the young buds burst into leaf; it immediately spins two leaves together, and continues this practice during the whole of the larval state. Like some other species it effects the various changes of skin in the same situation. In confinement it appears to feed only at night. The following is a description of the full-grown larva, which is not at all variable either in colour or markings,—pale yellowish green, rather glossy, not unlike N. dictæa. The dorsal stripe broad pale yellow, much more so than the ground colour. Spiracular line the same; along the latter is a row of black rings, somewhat oval, having a pale yellow centre. There is one such ring in the second and ten following segments. Just midway between the dorsal and spiracular lines is another slender, clear yellow stripe, slightly interrupted by the segmental divisions. Head chrome-yellow, bordered with black. Mouth and prolegs black, slightly mottled with yellow. The larva lies curled up between two leaves spun together, and in this position, when in a state of nature, may easily be detected by looking up at the leaves. Pupa subterranean; pupa-case weak. The larva is full-grown about the end of May, and the perfect insect appears throughout July. It appears widely distributed, and not uncommon.—*Rev. J. Greene; Cubley Rectory, Doveridge, Derby, July* 12, 1864, *in 'Entomologist's Monthly Magazine.'*

Habits and Description of the Larva of Lozogramma petraria.—A captured moth laid me some eggs on the 10th of May, 1864. These at first were pale straw-coloured, soon turned bright red, and afterwards became dingy. The larvæ hatched on the 28th of May, and fed throughout most freely on common fern (*Pteris aquilina*); they rested at full length, but when disturbed twisted into knots and jumped about angrily. They went to earth during the last week in June. The larvæ assimilate well in appearance to their food-plant, and must be hard to detect. When full-fed their length is rather over an inch, shape cylindrical and of uniform size throughout, except that the segmental folds look contracted and the head is rather flattened. The ground colour olive-green, belly paler, more olive-gray; some individuals had a slight reddish tint. At first sight the whole larva seems to be covered with very slender chocolate-brown longitudinal lines; I could count at least twenty-four all round the body, but on examination it is seen that these are arranged in pairs; thus, there is a double. dorsal and three double subdorsal lines, the lowest being darkest and thickest. The spiracles black, below them a creamy white line; and the belly is striped somewhat like the back, only that the lines are more diffuse and not so numerous; the segmental folds are red. —*Rev. J. Hellins, Exeter, in 'Entomologist's Monthly Magazine.'*

Proceedings of Societies.

ENTOMOLOGICAL SOCIETY.

December 5, 1864.—F. P. PASCOE, Esq., President, in the Chair.

Additions to the Library.

The following donations were announced, and thanks voted to the donors:— 'Catalogus Specierum Generis Scolia,' conscripserunt Henricus de Saussure et Julius

Sichel; presented by the Authors. 'Elatérides Nouveaux,' par M. E. Candèze; by the Author. 'Tijdschrift voor Entomologie,' Vol. vii. Parts 1—5: by the Entomological Society of the Netherlands. 'Sepp, Nederlandsche Insecten,' 2d Series, Nos. 35—46; by S. C. Snellen van Vollenhoven, Esq. 'Synopsis des Agrionines, 4e légion: Platycnemis,' par M. Edm. de Selys-Longchamps; by Dr. Hagen. 'Die wirbellosen Thiere der Provinz Preussen'; 'Die Odonaten und Neuropteren-Fauna Syriens und Klein-Asiens;' by the Author, Dr. Hagen. 'The Journal of Entomology,' No. 11; by the Proprietors. 'The Zoologist' and 'The Entomologist' for December; by the Editor. 'The Entomologist's Monthly Magazine,' No. 7; by the Editors. 'The Journal of the Society of Arts' for November; by the Society. 'The Reader' for November; by the Editor. 'The Athenæum' for November; by the Editor.

The following additions by purchase were also announced:—Voyage de Découvertes de l'Astrolabe—Partie Entomologique, par le Docteur Boisduval; Fabricius (J. C.), Species Insectorum; Paykull (G.), Fauna Suecica, Insecta; Paykull (G.), Monographia Staphylinorum Sueciæ; Paykull (G.), Monographia Caraborum Sueciæ; Gravenhorst (J. L. C.), Coleoptera Microptera Brunsvicensia nec non Exoticorum quotquot exstant in Collectionibus Entomologorum Brunsvicensium; Percheron (A.), Monographie des Passales; De Laferte-Senectére (F.), Monographie des Anthicus; Sturm (Jacob), Catalog der Kaefer-Sammlung; Catalogue de la Collection Entomologique du Muséum d'Histoire Naturelle de Paris, par MM. Milne-Edwards, Blanchard et Lucas; Fairmaire (Léon), Essai sur les Coleoptères de la Polynésie; Fallen, Monographia Cimicum Sueciæ.

Election of Members.

The Rev. Herbert Milnes, of Crich, near Matlock; William Hume, Esq., of 9, Gracechurch Street, London; and Trovey Blackmore, Esq., of The Hollies, Wandsworth, were ballotted for and elected Members of the Society.

Exhibitions, &c.

Mr. J. Jenner Weir exhibited some microscopic preparations of the spiral tongues of butterflies, for the purpose of showing the diversity of striation of the spiral tongue in different species, and of certain papillæ existing at the end of that member; the papillæ in Vanessa C-album were very different from those of the closely-allied species of Vanessa, whilst in the genus Argynnis they were found to be extremely brittle.

Mr. Bond exhibited a coloured drawing, by Mr. Buckler, of the larva of Acronycta strigosa, feeding on hawthorn; and a photograph of a remarkable negro variety of Abraxas Grossulariata.

The Rev. H. Clark exhibited a collection of Coleoptera made by Mr. Pickard-Cambridge above Cairo.

Mr. W. F. Evans sent for exhibition a box full of Lamellicorn beetles, or fragments of beetles, which had been picked out of some New Zealand wool; in some of the fleeces there were thousands of them. He inquired whether the beetles were in any way parasitic on the sheep, or sheep-tick feeders, or how they came to be in the wool? Mr. McLachlan said that thousands of the beetles occurred also in Australian fleeces. Mr. Janson determined the species to be Pyronota festiva; he believed that in the course of their flight the insects came in contact with the sheep, and became entangled in the wool so as to prevent their escape.

The President exhibited some globular spiders' nests from South Australia, whence they had been sent to him by Mr. Odewahn, of Gawler. The nests were found on branches of trees; the spiders were hanging near them, and were described as looking like the excrement of a bird, or as resembling the Longicorn beetle Onychocerus Scorpio, whilst the nests bore a remarkable resemblance to the fruit of Leptospermum, one of the Myrtaceæ, the native tea-tree of Australia.

Mr. S. Stevens exhibited several pairs of Cheirolasia Burkei, one of the rare Goliath beetles, recently received from Africa; and read a letter addressed to him by M. Du Chaillu, dated Fernand-Vaz River, 20th August, 1864, in which the writer announced the despatch to London of a large collection of insects, a live gorilla, and a number of gorilla-skins and skeletons; he intended to start in a few days for the interior, and would probably remain two years. Mr. Stevens mentioned that the gorilla had died on its passage to this country, but the collection of insects had arrived, and some of the Coleoptera were exhibited, including four or five species of Goliath beetles, G. Savagei, G. Sayii, G. torquatus, G. micans, &c.

Mr. F. Smith exhibited a parti-coloured wasps' nest belonging to Mr. Stone, of Brighthampton. Mr. Stone had a nest of Vespa Germanica in a window on the ground-floor, and in a corresponding position in the first-floor window, immediately over the other, was a nest of Vespa vulgaris; his attention was called to the nest on the ground-floor by the different colours of different parts thereof, some of which were found to be constructed of decayed wood, such as would be used by the common wasp, but not by Vespa Germanica. Examination showed that the lower nest owed its construction to the united labours of both species of wasps, the different material employed by each determining the colour of the portion built by that species. Further observation proved that specimens of the common wasp, when returning homewards with a low flight, entered the nest of V. Germanica, apparently by mistake, and deceived by the similarity of situation of the two nests.

Mr. F. Smith also exhibited the large larva and pupa of Ripiphorus, found in queen-cells of the common wasp, referred to at the previous meeting (Zool. 9378), and read the following communication from Mr. Stone:—

"It is certainly not the fact that female Ripiphori are found exclusively in female cells of wasps, and males in those of workers; for I have bred scores upon scores of both males and females from the cells of workers; nor can I perceive any very great difference in the size of the sexes, although the females are unquestionably somewhat larger, and much more plump in appearance, than the males; still there is nothing approaching the vast disproportion in size which exists between full-grown larvæ found occupying the cells of queens and those found in the cells of workers. The former must produce specimens of gigantic size. Then there must either be two distinct species, or there must be a permanently large and small variety, the former invariably depositing its eggs in the cells of queens, the latter in those of workers; or, if there is only one species, and no permanent variety of the insect, it must be that the difference in size arises solely from the fact that some larvæ have been placed, or by a piece of good luck have placed themselves, in a situation in which they have met with an abundant supply of food, thus enabling them to attain the full and proper size, and so produce ***Ripiphorus as it ought to be;*** while the others must be looked upon as diminutive examples of the insect, dwarfed and stunted by the limited and insufficient supply of food allotted to the larvæ from which they were produced. May I direct

Prof. Westwood's attention to page 294, vol. i., of 'An Introduction to the Modern Classification of Insects'? He will there find the following statement:—'The larger specimens of the Ripiphorus paradoxus, which are much more rare than the smaller ones, are uniformly found only in the cells of female wasps.' This statement appears to be made on the authority of the Rev. F. W. Hope, and from it I think may be plainly seen that that gentleman did not consider these large examples to be exclusively females, and the smaller ones, bred in the cells of workers, exclusively males."

Mr. Smith remarked that, according to Mr. Hope's experience, the Ripiphorus was found only in the nests of Vespa rufa, whereas Mr. Stone never found it in the nest of Vespa rufa, but only in that of V. vulgaris. Prof. Westwood thought this apparent discrepancy probably arose from some mistake in the nomenclature or synonymy of the species of wasp, rather than from an actual difference of habit of the Ripiphorus in different localities.

Mr. W. F. Kirby read the following:—

Notes on the Synonymy of certain British Butterflies.

"The following notes on priority are taken chiefly from Staudinger's 'Catalogue.'

"Genus Pyrameis, *Hüb.*, *Doubl. & Hew.*—This genus, which can be immediately distinguished from Vanessa by the rounded and scalloped hind wings, contains a number of very closely-allied species from different parts of the world, and forms an exceedingly natural group. This genus is admitted by many writers on exotic Entomology; but our European writers generally place the only two European species (Pyrameis Atalanta and P. Cardui), under the genus Vanessa. I think that so natural and well-marked a genus should be universally admitted.

"Genus Melanagria, *Meigen* (Arge, *Esp.*, *Hüb.*, *Bd.*)—This genus contains the group of Hipparchiæ, represented in England by Melanagria Galathea. The name Arge is inadmissible, because it is the specific name of one of the European species. Those who adopt the name Arge for the genus employ for the species Amphitrite, a name subsequently given to it.

"Erebia Epiphron, *Knoch* (Cassiope, *Fab.*)—If Staudinger is right in referring Erebia Epiphron and E. Cassiope to the same species, the latter name must sink, as Epiphron has the priority by ten years.

"Erebia Medea, *W. V.* (Blandina, *Fab.*)—The name Medea should be retained, as it has a priority of seventeen years.

"Polyommatus Medon, *Hufnagel* (Agestis, *W. V.*)—The former name has a priority of ten years, and should be retained.

"Polyommatus Icarus, *Rottemberg* (Alexis, *W. V.*)—The name Icarus has a slight priority, but that of Alexis is extremely objectionable, as there is an East Indian species of Stoll's (Œlicurus of Fabricius) bearing that name. The British species in question need not be confounded with the Icarius of Esper, a European insect, as we can adopt Schneider's name Amandus for that, as, if the two names are not simultaneous, it is probable that Schneider's has the priority.

"Polyommatus Serviargus, *Rottemberg* (Acis, *W. V.*)—Rottemberg's name has a slight priority over the other.

"Pyrgus Malvæ, *Linn.* (Alveolus, *Hüb.*)—Both Wallengren and Staudinger agree with Westwood in assigning Linneus's name to this insect. Illiger's P.

Malvarum, to which Linneus's description is generally referred, does not appear to occur in North Europe at all.

"Genus Cyclopides, *Hüb.* (Steropes, *Bd.*) — Boisduval's name is quite inadmissible, as it is the specific name of the type of his genus, for which he uses the name Arminthus, given to the insect eighteen years after the former one. His genus Syrichthus (Pyrgus, *Hüb.*) is also objectionable, as it is the Fabrician synonym of the North American Oileus of Linneus, a species most certainly belonging to Boisduval's genus Syrichthus."

Papers read.

Mr. W. C. Hewitson communicated "A Monograph of the Genus Ypthima, with Descriptions of two New Genera of Diurnal Lepidoptera." The new genera Cœnyra and Xöis consist each of a single species — Cœnyra Corycia, from Natal; and Xöis Sesara, from Fiji. Of Ypthima twenty-four species are enumerated, of which seven are new, viz., Y. Inica (East India), Y. Itonia (White Nile), Y. fasciata (Sarawak, Sumatra), Y. Ceylonica (Ceylon), Y. Loryma (Macassar, Celebes), Y. Methora (North India), and Y. Sepyra (Gilolo, Batchian).

Captain Hutton, of Mussooree, N.W. India, communicated a paper "On the Reversion and Restoration of the Silkworm." In this, the concluding part of a former communication to the Society (see 'Transactions,' 3rd series, ii. 143), the author details the progress of his experiments during 1864, with a view to the restoration of the silkworm to its pristine state of health. The selected black worms were hatched on the 21st March, some of the eggs having been laid in the spring and others in the autumn of 1863; all were decidedly unhealthy, the autumn batches less so than those of the spring; the latter were so terribly afflicted with jaundice, and with some disease that turned the worms dull green, that the whole of them had to be thrown away. The worms from the autumnal batch of eggs went on satisfactorily and spun good cocoons, the moths from which deposited a goodly number of eggs at the end of May, and these began to hatch for a second crop in September. With a few of this brood the author expresses his intention of carrying on his experiments for amusement, but he now feels fully persuaded that the constitution of the worm has been so thoroughly undermined, that, although it may be restored to its natural appearance, it will never be able to shake off the various diseases to which it has so long been subject. The only way open to the sericulturist is therefore to re-seek, in the original habitat in China, for the wild worms in their natural state of freedom on the trees, and, should any be procurable, the entire stock in Europe may be gradually renewed. The author, after arguing at length against the opinion of Indian sericulturists that the several forms of silkworm are but varieties of a single species, then proceeds to evolve eighteen silk-producing species of Bombycidæ, twelve belonging to the genus Bombyx (six domesticated and six wild species), five belonging to the genus Ocinara, the remaining one being the Trilocha varians of Moore.

New Part of 'Transactions.'

A new Part of the 'Transactions' (Third Series, vol. ii. Part 3) was announced as ready for distribution.—*J. W. D.*

6 FE65

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No. 6 contains:—Descriptions of the Larvæ of Anthocharis Cardamines, Gonepteryx ni, Argynnis Paphia, Vanessa C-album, Satyrus Megæra, S. Hyperanthus and obius Davus, by Edward Newman. Larva and Pupa of Ripiphorus paradoxus, *one.* Multitudes of Syrphus Pyrastri in the Isle of Wight, *William Gibson, C. E.* *an.* Note on Euplexia lucipara, *John S. Dell.* Age of the Larva of the Goat ; Sex of Larvæ, *William Gibson.* Peculiarity of the Structure of Chelonia caja, *y Moncreaff.* Ophiodes lunaris in Ireland. Nonagria neurica at Horning Fen. on Ephyra pendularia, *W. West.* Beautiful Variety of Callimorpha dominula. ampa Craccæ in Devonshire. Food-plant of Ino Geryon. Entomological Society. Scoliæformis. Food-plant of Coremia unidentaria. Duplicates.

No. 7 contains:—Descriptions of the Larvæ of Chortobius Pamphilus, Polyom- Hippothoë, Phragmatæcia Arundinis and Zeuzera Æsculi, by Edward Newman. ological Periodicals:—'The Entomologist's Monthly Magazine;' 'Young nd:' 'The Naturalist.' The reimbibition of Fluid ejected by Tortrix Larvæ, and a permutana at New Brighton, *John Peers.* Gonepteryx Rhamni in Ireland, *Birchall.* Hybernation of Vanessa C-album, *Rev. E. Horton.* List of Dupli- offered gratuitously. Parasites upon Wasps, *S. Stone.* Locusts in Cornwall, *Cornish.* Note on Cynips lignicola, *F. Walker.* The Artichoke Gall, *C. Sey-* Acari on the Wings of Triphæna pronuba, *Rev. E. H. Todd.* Number of s of Skin in the Smerinthi, *J. R. S. Clifford, Henry Moncreaff.* Taking Moths Trunks of Trees, *William Gibson.* Geophilus electricus, *Albert Dumsday.* lia syringaria emerging in October, *William Stewart.* Larva of Acronycta *Edwin Tearle.* Entomological Society.

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TO CORRESPONDENTS.

It is intended, in future numbers of the 'Zoologist,' to give monthly reports o ornithological occurrences in different parts of the United Kingdom: I have several o the most kind offers of assistance in carrying out this project, which I think cannot fa to be acceptable to subscribers. I shall be pleased to correspond with any ornitholog on the subject.

Communications with the following signatures unavoidably stand over:—J. W May, Charles B. Wharton, H. W. Newman, Henry Moses, Edward R. Alst H. Blake-Knox, W. Jeffery, jun., J. H. Gurney, N. C. Tuely, W. W. Boult H. L. Saxby, J. E. Harting, H. Hadfield, Henry Blackmore, Murray A. Mathe besides a notice by myself of Mr. Gurney's List of the Accipitres in the Ipswich Museu

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